

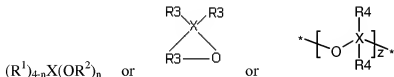
## **Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in this application:

### **Listing of Claims:**

1. (Currently Amended) A method of forming an organic molecule, comprising contacting a hydrolase enzyme with an organic reactant, wherein:

the organic reactant comprises the formula:



wherein:

X is selected from the group consisting of silicon and germanium;

R<sup>1</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine,  $-(OXR^4)_2-OXR^4$ , and a combination thereof;

R<sup>2</sup> is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;

R<sup>3</sup> is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;

R<sup>4</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine,  $-(OSiR^5)_2-OSiR^5$ ,  $-(OSiR^5)_3$  and a combination thereof;

R<sup>5</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;

n is an integer from 0 to 4;

y is 0 or is an integer greater than 0; and

z is 3 or is an integer greater than 3;

the hydrolase enzyme comprises lipase, protease, ~~phosphoesterase, esterase, cutinase~~ or a combination thereof;

the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase or a combination thereof;

the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and

the hydrolase enzyme catalyzes the hydrolysis and condensation of the organic reactant to form the organic molecule.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The method according to claim 3 1, wherein the protease enzyme is trypsin.

5. (Original) The method according to claim 1, wherein the formula for the organic reactant is selected from the group consisting of  $(R^1)_4X$ ,  $(R^1)_3X(OR^2)_1$ ,  $(R^1)_2X(OR^2)_2$ ,  $(R^1)_1X(OR^2)_3$  and  $X(OR^2)_4$ .

6. (Original) The method according to claim 1, wherein the concentration of hydrolase enzyme is equal to or greater than 1 mg/mL.

7. (Original) The method according to claim 6, wherein the concentration of hydrolase enzyme is from about 20 mg/mL to about 60 mg/mL.

8. (Original) The method according to claim 7, wherein the concentration of hydrolase enzyme is about 40 mg/mL.

9. (Original) The method according to claim 1, wherein the organic reactant to enzyme mole ratio is less than or equal to about 40000:1.

10. (Original) The method according to claim 1, wherein the reaction is conducted at a pH from about 5.0 to about 8.0.

11. (Original) The method according to claim 10, wherein the reaction is conducted at a pH of about 7.0.

12. (Currently Amended) The method according to claim 1, wherein the reaction is conducted in an aqueous solution, ~~or a solvent~~ ~~or a solventless~~ condition.

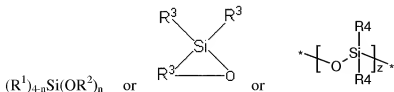
13. (Original) The method according to claim 1, wherein the reaction is conducted at a temperature of between about 5°C to about 90°C.

14. (Original) The method according to claim 13, wherein the reaction is conducted at a temperature of between about 20°C to about 50°C.

15. (Original) The method according to claim 14, wherein the reaction is conducted at a temperature of about 25°C.

16. (Currently Amended) A method of forming an organosilicon molecule, comprising contacting a hydrolase enzyme with an organosilicon reactant, wherein:

the organosilicon reactant comprises the formula:



wherein:

$R^1$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine,  $-(OSiR^4)_y-OSiR^4_3$ , and a combination thereof;

$R^2$  is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;

$R^3$  is selected from the group consisting of alkyl, unsaturated alkyl, aryl hydrogen and a combination thereof;

$R^4$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine,  $-(OSiR^4)_y-OSiR^4_z-$   $(OSiR^5)_x-OSiR^5_z$  and a combination thereof;

$R^5$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;

n is an integer from 0 to 4;

y is 0 or is an integer greater than 0; and

z is 3 or is an integer greater than 3;

the hydrolase enzyme comprises lipase, protease, ~~phosphoesterase, esterase,~~ cutinase or a combination thereof;

the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase or a combination thereof;

the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and

the hydrolase enzyme catalyzes the hydrolysis and condensation of the organosilicon reactant to form the organosilicon molecule.

17. (Cancelled)

18. (Cancelled)

19. (Currently Amended) The method according to claim ~~18~~ 16, wherein the protease enzyme is trypsin.

20. (Original) The method according to claim 16, wherein the formula for the organosilicon reactant is selected from the group consisting of  $(R^1)_4Si$ ,  $(R^1)_3Si(OR^2)_1$ ,  $(R^1)_2Si(OR^2)_2$ ,  $(R^1)_1Si(OR^2)_3$  and  $Si(OR^2)_4$ .

21. (Original) The method according to claim 16, wherein the concentration of hydrolase enzyme is equal to or greater than 1 mg/mL.

22. (Original) The method according to claim 21, wherein the concentration of hydrolase enzyme is from about 20 mg/mL to about 60 mg/mL.

23. (Original) The method according to claim 22, wherein the concentration of hydrolase enzyme is about 40 mg/mL.

24. (Original) The method according to claim 16, wherein the organosilicon reactant to enzyme mole ratio is less than or equal to about 40000:1.

25. (Original) The method according to claim 16, wherein the reaction is conducted at a pH from about 5.0 to about 8.0.

26. (Original) The method according to claim 25, wherein the reaction is conducted at a pH of about 7.0.

27. (Currently Amended) The method according to claim 16, wherein the reaction is conducted in an aqueous solution, ~~or a solvent~~ ~~or a solventless~~ condition.

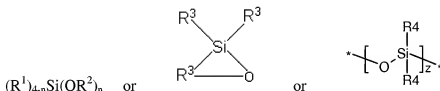
28. (Original) The method according to claim 16, wherein the reaction is conducted at a temperature of between about 5°C to about 90°C.

29. (Original) The method according to claim 28, wherein the reaction is conducted at a temperature of between about 20°C to about 50°C.

30. (Original) The method according to claim 29, wherein the reaction is conducted at a temperature of about 25°C.

31. (Currently Amended) A method of forming an organosilicon intermediate molecule, comprising contacting a hydrolase enzyme with an organosilicon reactant, wherein:

the organosilicon reactant comprises the formula:



wherein:

$R^1$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine,  $-(OSiR^4)_2$ ,  $-OSiR^4$ , and a combination thereof;

$R^2$  is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;

$R^3$  is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;

$R^4$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine,  $-(OSiR^4)_2$ ,  $-OSiR^4$ ,  $-(OSiR^5)_2$ ,  $-OSiR^5$  and a combination thereof;

$R^5$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;

n is an integer from 0 to 4;

y is 0 or is an integer greater than 0; and

z is 3 or is an integer greater than 3;

the hydrolase enzyme comprises lipase, protease, ~~phosphoesterase, esterase~~, cutinase or a combination thereof;

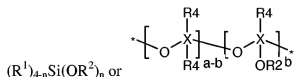
the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase or a combination thereof;

the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and

the hydrolase enzyme catalyzes the hydrolysis of the organosilicon reactant to form the organosilicon intermediate molecule.

32. (Currently Amended) A method of forming an organosilicon molecule, comprising contacting a hydrolase enzyme with an organosilicon intermediate reactant, wherein:

the organosilicon intermediate reactant comprises the formula:



wherein:

$R^1$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine,  $-(OSiR^4)_y-OSiR^4_3$ , and a combination thereof;

$R^2$  is a hydrogen;

$R^3$  is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;

$R^4$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine,  $-(OSiR^4)_y-OSiR^4_3$ ,  $-(OSiR^5)_z-OSiR^5_3$  and a combination thereof;

$R^5$  is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;

n is an integer from 0 to 4; and

y is 0 or is an integer greater than 0;

a + b equals z;

z is 3 or is an integer greater than 3;

the hydrolase enzyme comprises lipase, protease, ~~phosphoesterase, esterase~~, cutinase or a combination thereof;

the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase or a combination thereof;

the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and

the hydrolase enzyme catalyzes the condensation of the organosilicon intermediate reactant to form the organosilicon molecule.